

I. REASONING

1. $12 - (7 + 8) \div 3$

$$12 - 15 \div 3 = 7$$

2. $5 + 3 \cdot 2 + 4$

$$5 + 6 + 4 = 15$$

3. $3 + 4(12 - 4)$

$$3 + 4(8)$$

$$3 + 32$$

$$35$$

4. Give the inverse of the following relation. $(9, 1), (5, -2), (8, 0)$ Is the relation a function? yes

$$(1, 9)(-2, 5)(0, 8)$$

Simplify

5. $[4.7]$

6. $[10.2]$

7. $[7.8]$

Know Associative, Commutative and ^{*}Distributive properties and be able to recognize an Identity

Know your Order of Operations

II. PROBLEM SOLVING

Simplify, exact answer, positive exponents only.

8. $16^{\frac{3}{4}}$

$$(\sqrt[4]{16})^3 = 2^3 = 8$$

9. 3^{-3}

$$\frac{1}{3^3} = \frac{1}{27}$$

10. $49^{\frac{-1}{2}}$

$$\sqrt{\frac{1}{49}} = \frac{1}{7}$$

11. $x^0 = 1$

12. $(7xy^3)^2$

$$7^2 x^2 y^6 = 49x^2y^6$$

13. $7x^7(5x^5)$

$$7 \cdot 5 x^{12} = 35x^{12}$$

14. $\frac{728x^5y^2}{312xy^8}$

$$\frac{7x^4}{3y^6}$$

15. $\left[\frac{32x^4y^6}{8x^{10}y^3}\right]^2$

$$\left(\frac{4y^3}{x^6}\right)^2 = \frac{16y^6}{x^{12}}$$

Given, $f(x) = 3x + 4$, $g(x) = x^2 + 3$, $h(x) = 5 - x$, $m(x) = -8x$, find the following:

16. $f(-5)$

$$3(-5) + 4 = -15 + 4 = -11$$

17. $h(12)$

$$5 - (12) = -7$$

18. $g(-4)$

$$(-4)^2 + 3 = 16 + 3 = 19$$

19. $m(0)$

$$-8(0) = 0$$

20. $f + h$

$$(3x + 4) + (5 - x) = 3x - x + 4 + 5 = 2x + 9$$

21. $m - h$

$$(-8x) + (-5 + x) = -8x + x + (-5) = -7x - 5$$

22. $(f \circ g)(4)$

$$3(x^2 + 3) + 4 = 3x^2 + 9 + 4 = 3x^2 + 13$$

23. $(g \circ h)(1)$

$$h(1) = 5 - 1 = 4$$

$$g(4) = (4)^2 + 3 = 16 + 3 = 19$$

24. $f \circ h$

$$3(5 - x) + 4 = 15 - 3x + 4 = 19 - 3x$$

25. $m \circ g$

$$-8(x^2 + 3) = -8x^2 - 24$$

26. $m \cdot f$ multiply

$$(-8x)(3x + 4) = -24x^2 - 32x$$

$$3(4)^2 + 13 = 48 + 13 = 61$$

$$(5 - x)^2 + 3 = (5 - x)(5 - x) + 3$$